Abstract

Research of increase of production efficiency and post- harvest handling of Amaryllis was divided in to 3 experiments as follows;

Objective 1: appropriate method for product Amaryllis as cut flowers.

Experiment 1: The studies on water use efficiency and fertilizer rates on growth and development of Amaryllis. Plant were supplied water 100% ETc with 3 differences treatments of fertilizer rates i.e., T1) no fertilizer supply, T2) applied fertilizer formula 15-15-15 2.5 grams/plant/month and T3) applied fertilizer formula 15-15-15 5.0 grams/plant/month. The result showed that at stage 3 (90 days after planting) plant supplied with 5.0 grams fertilizer gave a Evapotranspiration rate, Crop Evapotranspiration; ETc and Crop Coefficient, Kc higher than no fertilizer treatment. For growth, it was found that at 84-168 days after planting plant supplied with 2.5 and 5.0 grams fertilizer rates gave higher plant height and number of leaf per plant than no fertilizer treatment.

Experiment 2: The studies on effect of nutrient deficiency on growth of Amaryllis. Plants were grown in hydroponics system by using Hoagland and Arnon, 1950 (according by Jones, 1997) nutrient solutions as based formula. The experiment design was completely randomized design with 7 treatments: i.e., 1) No fertilizer (water only) 2) complete nutrient solution and treatment 3-7 plant were grown with nutrient solution lacking of N, P, K, Ca and Mg respectively. The result found that the lowest plant growth (root length, root density, plant height, and number of leave per plant) were showed in plant supplied water only and there were not different on flower quality among treatment. At 28 weeks after planting plant grown in lacking of magnesium treatment were appear inervienal chlorossis symptom of leaf and lacking of nitrogen treatment were appear yellow in old leaf.

Objective 2: To study post-harvest management on Amaryllis cut flowers production.

Experiment 3: Post-harvest management of Amaryllis.

Experiment 3.1 Effect of flower cutting stage on vase life of Amaryllis. Flower of Amaryllis cultivars 'Carina' with the same flower size and 30 cm of stalk length were selected. Flowers were harvest at 3 different stage i.e. 1) tight bud stage 2) flowers color appearing and 3) initial flowers blooming stage. The result showed that flowers cutting at color appearing stage gave the longer vase life (8.9 days) than tight bud stage (7.6 days) and initial flowers blooming stage (7.5 days)

Experiment 3.2 Effect of temperature and storage duration on vase life of Amaryllis. Flower of Amaryllis cultivars 'Carina' with the same flower size and 30 cm of stalk length were selected. Then, flowers were stored in 2 factors i.e., factor 1: 3 level of temperatures in storage room (2, 15 and 25 °C) and factor 2: 3 level of storage time (3, 5 and 7 days). After storage each treatment were recut flower and place in distilled water at room temperature. The result showed that flower stored at 2 °C for 3 days gave the longer vase life 6.8 days than other treatment.

Experiment 3.3 Effect of 8-hydroxyquinoline sulphate with calcium chloride on vase life of Amaryllis. Flower of Amaryllis cultivars 'Carina' with the same flower size and 30 cm of stalk length were selected. Then flower were test with 2 factors i.e., factor 1: 2 level of pulsing solution (8-hydroxyquinoline sulfate 200 mg/l with 2% sugar for 4 hours and soaked in distilled water for 4 hours). factor 2: 4 levels of calcium chloride concentration (0, 50, 100, 150 and 200 mg/l). Control is 8-hydroxyquinoline sulfate with 50 mg/l of silver nitrate. The result showed that 8-HQS+2% sugar 4 hours+$CaCl_2$ 100 mg/l gave the longest vase life (10.0 days).

Experiment 3.4 Effect of abcisic acid on vase life of Amaryllis. Flower of Amaryllis cultivars 'Carina' with the same flower size and 30 cm of stalk length were selected. Then put in of abcisic acid solution with 4 different concentrations i.e., 0 (distilled water), 2, 4 and 8 mg/l. The result the concentrations of abcisic acid at 2 mg/l gave longer vase life (9.4 days) more than abcisic acid 0 mg/l (distilled water) (8.4 days).